The magazine of the World Health Organization

March-April 1962

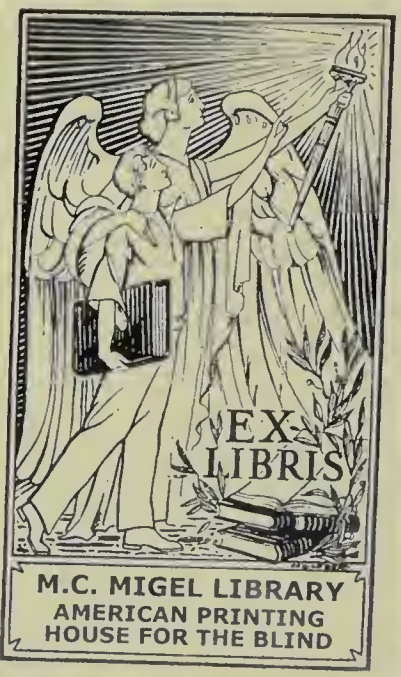
# WORLD HEALTH

PAN AMERICAN SANITARY BUREAU
Regional Office of WHO in the Americas

Sw. fr. 1.- — 1/9 d — 30 cents (USA)

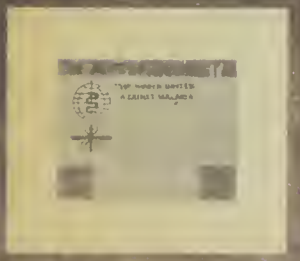
*An eye operation from the earliest Turkish manuscript on surgery.*

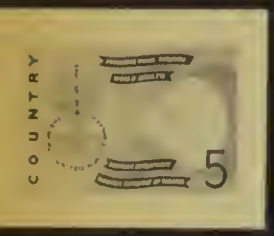
## World Health Day : Preserve Sight



# TH UNITED
# A LARIA

The is he world malaria programme promi It has already attracted the attention of postal administrations and collectors all over the world. Artists have been inspired by the special anti-malaria issue and many designs have been made. Some of these projects are shown here. The proposed date of issue is World Health Day, 7 April 1962. While it is desirable that all stamps should bear the emblem suggested by the World Health Organization, governments are naturally at liberty to create a design of their own. Anti-malaria postage stamps will stress the international character of the grand global eradication programme, and will contribute to a wider appreciation of the importance of malaria and of the great battle now under way to free mankind once and for all from this ancient scourge.

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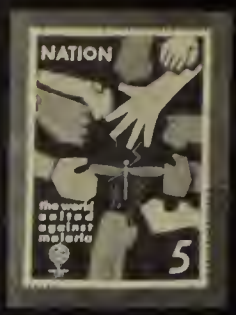
THE WORLD UNITED AGAINST MALARIA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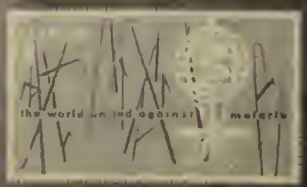
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# WORLD HEALTH

The magazine of the World Health Organization, Palais des Nations, Geneva, Switzerland.

MARCH-APRIL 1962 - VOL. XV - No. 2


**SPECIAL ISSUE: THE EYES**

EYES IN DANGER AT EVERY AGE OF LIFE


by Professor A. Franceschetti

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EYES THROUGH THE AGES


- Painters and sculptors interpret an eternal theme . . . . . 21-26


● The world has over 10 million
their sight had they benefited in
The great causes of blindness are str
such as trachoma, smallpox and onch
surgery ● Glaucoma can often be ha
is but a fraction of the burden im

# EYES IN
# at every
# age of life

blind ● Over two thirds of them could have preserved
time from modern preventive medicine and surgery ●
ll accidents that need not happen, and preventable diseases
ocerciasis (river blindness) ● Cataract can be remedied by
lted if discovered in time ● The cost of preventive services
posed on national economies by widespread loss of sight

(Extract from the message of Dr M. G. Candau, Director-General of WHO, for World Health Day, 7 April 1962)

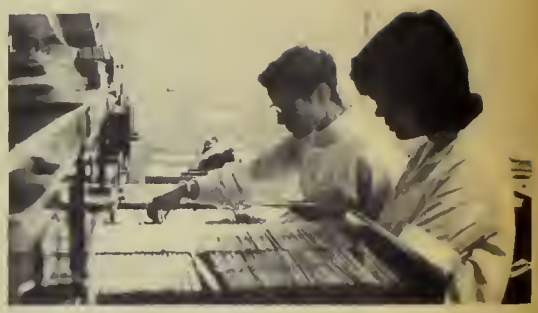
# DANGER

**In the following pages, Professor A. Franceschetti, who is President of the International Association for the Prevention of Blindness and directs the University Ophthalmological Clinic in Geneva, explains what can be done to preserve sight.**

# BEFORE BIRTH

## Check on heredity

Blindness, even blindness later in life, can sometimes be traced back to an inherited condition of which only an occasional case may have occurred in only one branch of the family. Pre-marital medical examinations can be of great help to young couples who want to found a family, but who dread hereditary dangers. Present-day medical genetics can predict the likelihood of an hereditary defect recurring and estimate the changes that may arise from generation to generation through mutation.



*Detailed files on family histories are part of a medical genetics service.*

## No marriage between blood relatives

The relationship between consanguinity and hereditary disease has been demonstrated convincingly. According to one calculation, the risk of blindness linked to hereditary defects is 20 times higher for children of blood-related parents than for other children.
In olden times the Church used to insist on a special dispensation before allowing a marriage between first cousins. It would be well nowadays to make it clear to schoolchildren that a marriage between cousins is just as dangerous for the offspring (mental deficiency, mental illness, physical deformity) as a marriage between brother and sister.

*After a pre-marital examination the doctor can warn or reassure bride and bridegroom on their future responsibilities.*

## Beware of German measles

German measles is a mild disease, so mild that many people can hardly remember having it. But when a mother-to-be catches the illness during the first two months of her pregnancy it is a different matter. Her baby runs a more than 50/50 chance of being born with cataract, which is frequently combined with some other severe handicap such as deafness or heart malformation. There is only one way of warding off this danger : every girl should be exposed to German measles.

*Shortsightedness in Japan, according to one theory, is due to consanguinous marriages, which are more frequent there than in other countries.*

# THE FIRST SIX MONTHS

*Oxygen used in incubators for the survival of premature babies was the main cause of infantile blindness around 1954 (8.000 babies went blind from this cause in the United States of America). Today the disease has been practically eliminated by reducing the oxygen supply to a harmless concentration.*

## Incubator babies

The progress of science made it possible for babies born between the 6th and 9th month of gestation to survive in incubators, but it also exposed them to blindness caused by retrolental fibroplasia. This mysterious illness made its first appearance in the United States of America at the time incubators for premature babies were introduced. It involves the growth of a whitish membrane behind the lens, due to bad circulation, which in turn is caused by too much oxygen or an ill-regulated supply of oxygen inside the incubator. Up to a few years ago, 20 % of premature babies became blind for this reason. In most countries, the use of oxygen apparatus in incubators is now under strict control.

## Conjunctivitis of the new-born

Gonorrheal conjunctivitis is caused by the gonococcus and begins with the infection of the baby's eyes during birth. In Europe it used to be a leading cause of blindness in early childhood, but has practically disappeared with the widespread use of the Crédé method of prevention.

## Eyes that are too beautiful

Over-large eyes, particularly in a month-old baby, should give rise to caution rather than admiration (the remark applies to paediatricians as well as parents). The child may be suffering from infantile glaucoma (increased pressure inside the eye) which causes progressive atrophy of the optic nerve.

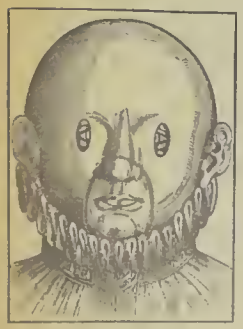
# EARLY CHILDHOOD

## To squint is to endanger an eye

A child may develop a squint, either pointing in or pointing out, at an age as early as 6 months—occasionally a baby is born with one. Sometimes a squint appears later in childhood and may be precipitated by an acute illness such as measles. Immediate treatment is essential because a squinting eye becomes passive and increasingly weak-sighted. A child will *not* "grow out" of a squint as is commonly believed, and the longer it is left the less chance of full recovery. Sometimes appropriate spectacles are all that are required, and these can be worn at a very little age. Special exercises and training of the eye muscles may be needed to bring back full two-eyed, three-dimensional vision. An operation may be necessary. No two cases of squint are exactly alike, however, and the correct treatment can only be decided after a full examination by an eye-doctor.

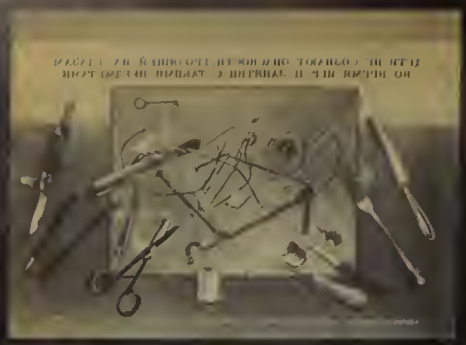
*Chantal before the operation to correct her squint.*

*With this optical apparatus Chantal put the muscles of her weak eye to work befo the operation and tried to move images A and B together to obtain image C. slight squint can also sometimes be cured by the wearing of appropriate glass*



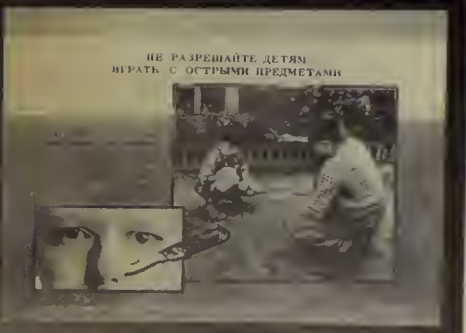
*This 16th century convas mask was supposed to correct a converging squint.*

*Chantal after her operation.*



Children don't understand how dangerous these objects can be.

Irochka hit her eye with a fork. A white spot appeared in the cornea and her sight has seriously diminished.




He hit his younger brother in the eye with a penknife and the boy's vision is now blurred.

Zhenia hit a girl with an arrow in the eye. The eye had to be removed.

*One method of correcting a lazy eye : exercises.*

## Educate the weak eye

About 2 to 5 % of the population suffer from a lazy eye—though not necessarily from a squint—and therefore have diminished vision. The development towards weak-sightedness and blindness can often be arrested by temporarily covering up the good eye in order to exercise the other one and make it work properly.

## Glasses for short-sighted babies

Short-sightedness can be congenital. It becomes noticeable when babies, at the age of say one year, move too close to the object they want to pick up. To prevent their short-sightedness from growing worse, these babies should be made to wear glasses as soon as possible. A toddler will not try to get rid of his glasses, for he soon realises that he needs them.

## Dangerous games

Children should never be allowed to play with pointed objects such as knives and scissors, which all too often are left within their reach. Bow and arrow games should be banned until the children are old enough. Fire-works are a cause of many eye-injuries in children, as are detonators and other explosives still to be found on old battle-grounds.

## A whitish haze

A whitish haze in the pupil of a young child's eye, could mean glioma, a malignant tumour also known as cat's-eye amaurosis. Parents should consult the doctor.

*Pictures from a Soviet filmstrip "Watch Children's Eyes".*

# CHILDHOOD

CONTINUED

## Headaches

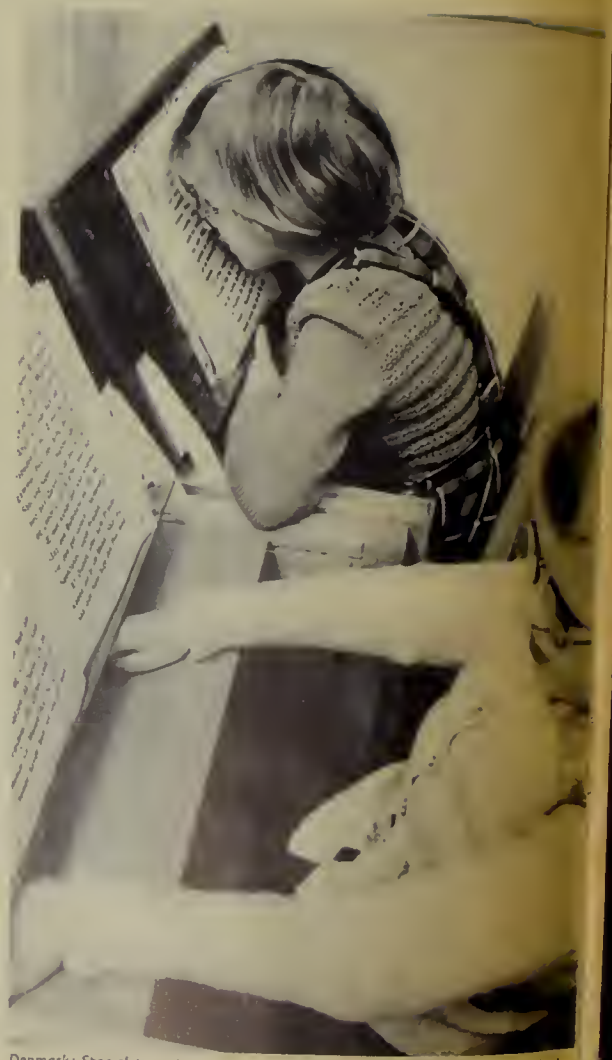
Frequent among adults, headaches have a different significance among children. When a child is upset, worried or disappointed, he usually has a stomach reaction and vomits. His headaches are almost always caused by the fact that he needs glasses.

## For the weak-sighted

Near-blindness is important in an educational sense. Special classes for the weak-sighted have been tried, but it was found preferable to let such children go to ordinary classes from the age of 10 to 12 onwards. Even at an earlier age, separate classes are unnecessary if the teachers understand the problem. Weak-sighted children, even if they are threatened with blindness, should never be sent to a school for the blind. If the worst comes to the worst, they can always learn Braille later. Backward blind children should never be sent to homes for the blind, nor to homes for backward children, but to establishments specially designed for them. Unfortunately such establishments are rare.

## For the short-sighted

Short-sightedness may develop towards the age of puberty, between 10 and 14 years. It is erroneously attributed to eye strain at school; in fact, the same weakness is found among people who never go to school. School work does not tire the eyes and cause short-sightedness; the strain comes from the growth of the eyeball and is often due to hereditary factors. Short-sighted teen-agers should therefore no longer be exempt from working with their eyes, but should be fitted with glasses that will improve their vision.



*Denmark: Special provision needs to be made for weak-sighted children at school.*

*Spain: The gesture of bad vision. Not seeing things clearly in class will often mean backwardness for the child at school.*

*India: All the school children have their eyes examined here.*

*Egypt: The school children have been taught to treat themselves. The same system is applied on a large scale in other countries also.*

## Trachoma

The greatest single world cause of serious and progressive loss of sight often leading to blindness is trachoma. According to a WHO estimate, 500 million people, one sixth of the world's population, are affected. Although often only detected at school age, trachoma is usually contracted much earlier. In many North African countries more than nine-tenths of the indigenous rural population become infected with trachoma in the first year of life. A report from a WHO European Conference on Trachoma states: "In countries where virtually whole populations are affected with trachoma and seasonal conjunctivitis, it is not uncommon to find that more than one per cent of adults are totally blind, and more than four per cent are economically blind (i.e. unable to perform any useful work for which sight is essential). More than ten per cent have serious impairment of vision and a much higher percentage have lesser visual defects. With each successive age group, the incidence of visual loss increases."

*Before and after the application of the antibiotic that cures trachoma and seasonal conjunctivitis. In many sub-tropical areas, almost all young children are afflicted by regularly recurring epidemics of acute bacterial conjunctivitis, which causes much loss of sight. Treatment with antibiotics is effective, simple and cheap.*

*Normal vision.*

*Blurring of image due to opacity of the cornea such as that resulting from trachoma.*

*Distortion of vision due to irregularities of the cornea as occurs in some developmental defects.*

# WHAT YOU SEE W

**A World Health photographer, Jean Mohr, gives a**

*Doubling of vision in early squint.*

*Loss of part of the field of vision due to disease of the back of the eye involving the retina.*

# ITH DEFECTIVE SIGHT

**s an interpretation of some common forms of defective vision.**

*Descartes' attempt at showing how the eyes see.*

# ADULTHOOD

## Work accidents

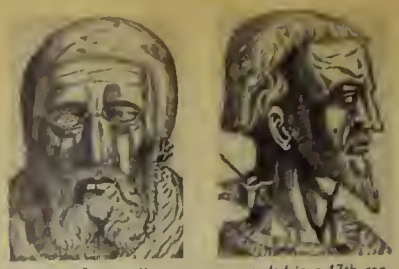
It is up to the preventive health services to identify and eliminate the accident situations that may arise in work shops, on building sites, and in industry generally. Physicians in industry should insist on the use of safety devices (masks for solderers and road menders, goggles for cutters, etc.) and on the observance of safety regulations in every dangerous trade. Burns caused by molten metal and alkalis are especially dangerous. Quick-lime burns, for instance, often lead to blindness. Vintners are frequently so affected. The hoses used in wine-growing countries for spraying lime on vines should never be inspected by putting one's eye to the hole. Nor should one blow down the tube to make sure it is in working order. Caustics such as lime burn more deeply than acids, and their disastrous effects are apparent only on the second or third day. After contact with quicklime the eye should be washed in a plentiful supply of plain water and an ophthalmologist should be consulted at once.

## Occupational diseases

These are usually either chronic or acute poisonings and can be caused, to quote one example, by certain cleaning fluids that affect the optic nerve. The only way to prevent such causes of blindness is to strengthen the safety measures that apply in certain factories and in certain trades.

*In the factory, unbreakable glasses are an elementary precaution. But workers, despising danger, often fail to protect themselves.*

*Vision according to Leonardo da Vinci. He discovered the essential rôle of the retina and studied the contraction of the pupil. He wrote mirror-writing with his left hand.*



*Remedies for eye diseases recommended in a 17th century medical treatise: wicks threaded through the eyelids soaked in honey, vinegar and verdigris (left), and perforation of the nape of the neck (right).*

*Coloured halo or "rainbow ring" is seen around lights on a clear night by those suffering from glaucoma, a serious condition caused by increased pressure in the eyeball. It is a danger sign which must not be ignored. Glaucoma causes 14% of total blindness in Great Britain and 11.6% in the United States.*

## Glaucoma

The incidence of glaucoma increases with age. It is above all a disease of the fifties and ranks second highest among causes of blindness. It is characterized by increased pressure of the fluids inside the eye. Its cause is unknown. Glaucoma is dangerous because its progress is insidious. Out of 100 cases, 12 to 15 can be expected to lead to blindness unless treatment is started as soon as the very first signs appear : diminished vision, seeing coloured rings around lights, reduced field of vision. Yet glaucoma can usually be halted on the following conditions :

*a)* The disease must be diagnosed in its early stages. This in itself presents some difficulty since at first there is no pain and no outward sign that might attract the attention of others. Systematic case finding, attempted in the United States of America, has proved practically impossible. In Switzerland, in Geneva, special consultations take place once a week to check the ocular tension, sharpness of sight and field of vision of people threatened with glaucoma. These measures have increased the proportion of patients under regular medical observation from 50 to over 90 % of the total number of patients known to the clinic.

*b)* Treatment must be continued for a long time. Though exceptions are possible, the most careful treatment cannot be expected to yield results in a few hours nor in a few months. Treatment in fact is not spectacular and merely stabilizes the patient's vision. As it reduces the pupil in order to improve circulation within the eye, the patient often feels uncomfortable and believes he sees even less well than before. Too many glaucoma patients become weary of seemingly ineffectual remedies and about half of them abandon treatment until the day when lesions become established and blindness is inevitable. The prevention of blindness from glaucoma calls for a systematic check-up on the eyes and general health of all glaucoma patients. In this work the public health nurse has an important role to play.

# TROPICAL RIVER BLINDNESS

In districts heavily infected with onchocerciasis there are villages where all the

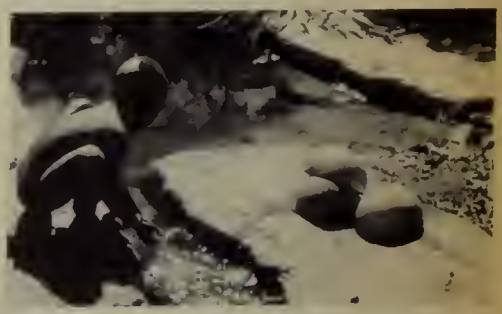
## Onchocerciasis

Onchocerciasis, or river blindness, is one of the filarial (worm) diseases which affect millions of people throughout the world. A four-year survey of blindness, carried out in West Africa for the Royal Commonwealth Society for the Blind, showed that whereas the prevalence of blindness in trachoma-ridden areas was 500 per 100,000 population, in areas where onchocerciasis was highly endemic the figure jumped sharply to at least 1,500 per 100,000. And in Northern Ghana a prevalence of 3,000 per 100,000 was found. A WHO expert committee on onchocerciasis, which in 1953 studied the disease and possible means of prevention, reported infection rates of 80 to 100 per cent in different countries of Africa and America. The Committee noted the good results in the control of the disease obtained in some places by methods directed either against the worm parasite or against the river-breeding simulium fly which transmits it to man. In Leopoldville (Congo) for instance, DDT was sprayed from the air over the city and its surroundings, wiping out the simulium fly. In the Kodera district of Kenya, insecticide was put into the rivers in which the flies lay their eggs. The fly was wiped out and, seven years later, had not reappeared.

The eyes of the entire population are examined. Onchocerciasis is widespread in cen onchocerca volvulus, transmitted to man by the bite of infected flies. A multitu

odults ore blind. Children ore precious there: they can see, ond leod their elders obout until blindness overtokes them too.

tral America and large stretches of central Africa. The disease is caused by a minute worm, de of these worms invading the eye causes ocular disturbances and sometimes blindness.



Because the fly that transmits onchocerciosis breeds in running water, the diseose is limited to oreos close to streoms ond rivers. For this reoson, it is olso colled river blindness. In some locolities, neorly everybody is infected. Below: skin sompling for detection of microfilorioe.

# The assembly line approach

Photos : T. S. SATYAN

In the aphthalmological haspital of Sitapur created in 1926, up to 200 cataract patients can be operated a doy.

He is waiting for the operating table to be free.

The Sitapur Eye Hospital, directed by Dr H. L. Patney, is set up for "assembly-line" operations: cataract, glaucoma, squ

In India, which country alone has some 2 million blind, the following calculation has been made: Assuming that a person losing his sight before the age of 21 may expect to live 40 years, the total period to be endured in darkness by the 600,000 young persons concerned comes to more than 24 million years.

Taking all age groups together, the total of sightless years to be endured by India's two million blind comes to more than 41 million...

The work of the Sitapur eye Hospital (Uttar Pradesh) is a fine example of what surgery can do to counter blindness.

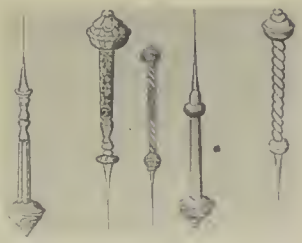
al grafts, etc.

After the operation the patient is led back to his bed

# OLD AGE

## Cataract

Gradual loss of sight may simply be the outcome of general deterioration due to the infirmities of old age: bad circulation, arteriosclerosis, diabetes. These cannot always be avoided, but their effects can be minimized by early recognition and treatment. The various forms of cataract must be closely watched until an operation is indicated. The operation is nearly always successful. Many other ailments of old age must be endured without hope of a miracle. The most that can be done is to hold back the dark night of blindness until the eyes close for ever.

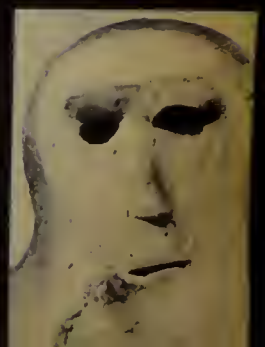


*Golden needles used in the 16th century for cataract operations. The author of the 16th century treatise from which these illustrations are taken recommends the surgeon to abstain from alcoholic beverages and late nights for some time before an operation.*

*Dr Satnam Singh examines an old lady with cataract and trachoma. Dr Singh is leader of the field research team of the Institute of Ophthalmology, University of Aligarh, India. The Institute is associated with the Indian Council for Medical Research and works in close collaboration with WHO in the study and control of trachoma in India.*

# EYES THROUGH THE AGES

Sight is one of man's most precious possessions and from the earliest times the eye has figured prominently in painting and sculpture. In the following pages, World Health shows illustrations of the eye as artistic expression and as a symbol in religion and magic. Above: the bulbous eyes of King Iku Shamagan (Mesopotamia, 3rd millenium B.C.). Right: the hollow eyes of a funeral statuette representing a monkey (Japan, 3rd to 5th century A.D.).



## THE EYE OF BUDDHA

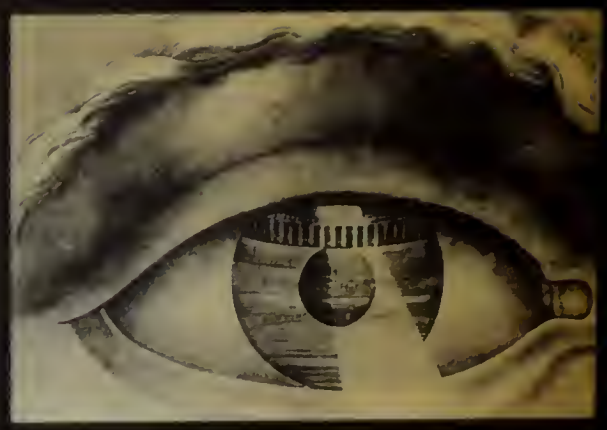
the symbol of supreme knowledge
and divine benevolence as represented on the tower
of Bodnath pagoda in Kathmandu, Nepal.

## THE EYE OF GOD,

a symbol of watchfulness and generosity, provides man with his daily bread.

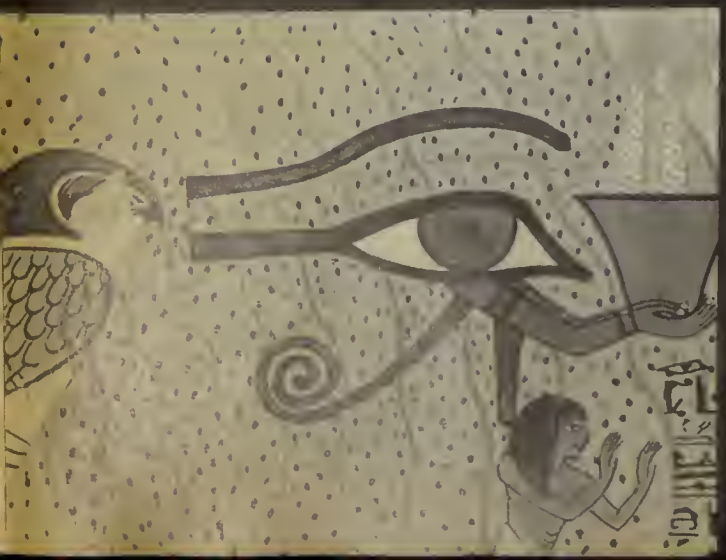
## THE FANCIFUL EYE

of an 18th century French architect, C.N. Ledoux, who accompanied his plans for the theatre at Besançon with this panorama.



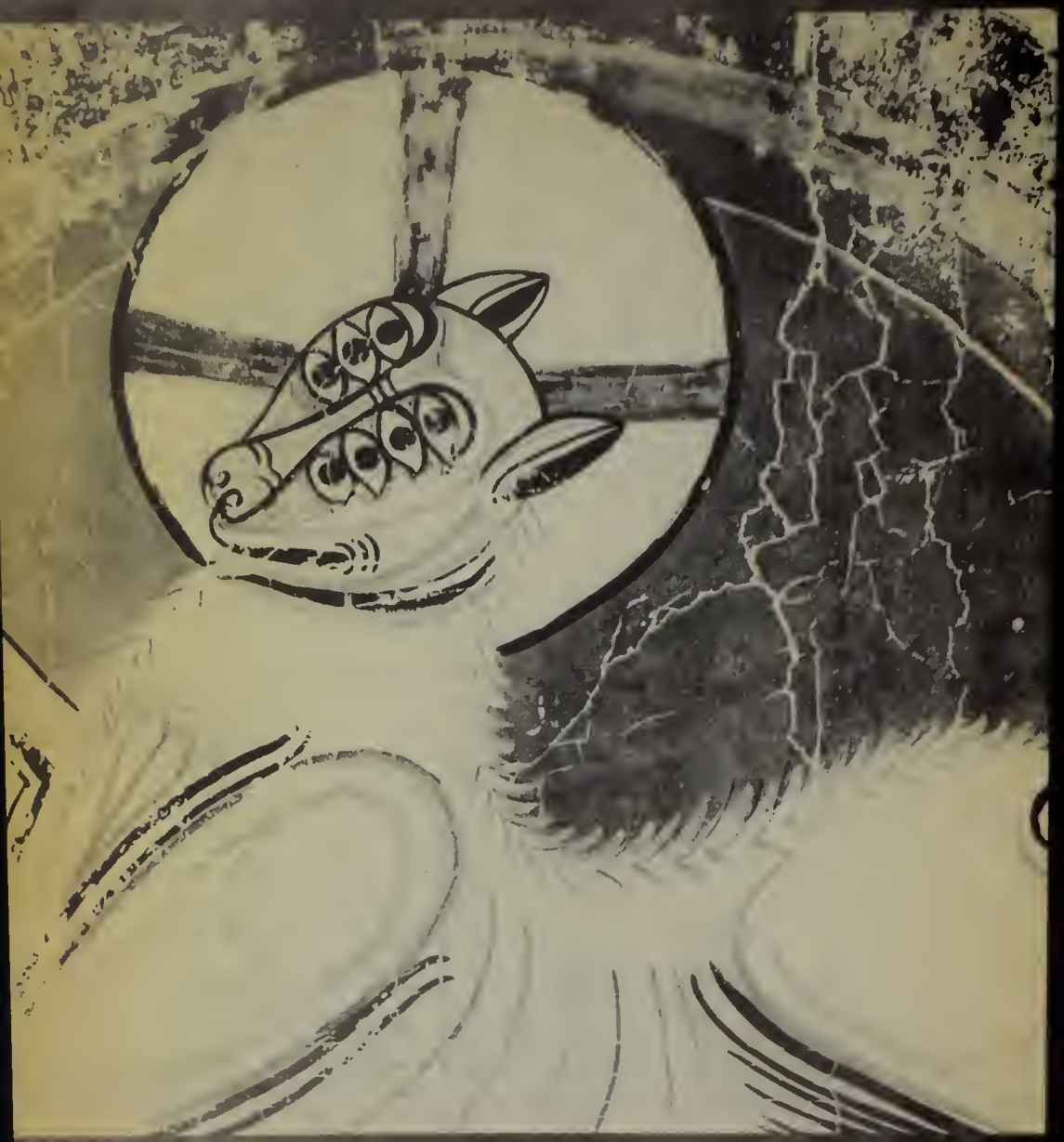
## THE EYE OF THE GNOSTICS

was a symbol of the higher world and is surrounded by the seven beneficent or maleficent powers that gave rise to the material world according to these early Christian heretics.



## THE EYE OF HORUS,

the Egyptian falcon-headed God, was reputed to safeguard health and protect the eyes. It also warded off the evil eye.



**THE EYES OF THE APOCALYPSE**

in Byzantine style as seen in a Catalonian church. The Lamb of the Apocalypse had "seven horns and seven eyes which are the seven Spirits of God sent forth into all the earth".

## THE EYES OF ST LUCIA

in southern Italy and in Sicily
have the reputation of healing blindness.

## THE GRATEFUL EYE

on a votive offering from 19th century
Spanish America. The initials
of the donor figure at the bottom.

## THE SACRIFICIAL EYE

In the 14th century, this Japanese
priest sacrificed one of his eyes to Buddha
to protect Tokyo from an epidemic.
After his death, his remains were revered
and have been preserved to the present day.

## THE EYES HEALED

as shown in a 14th century
Ethiopian miniature depicting Jesus Christ.

## THE SAHARAN EYE

on one of the oldest Tassili rock drawings. It represents the great Martian God Jabbaren.

## THE KLEE EYE

It is a theme that recurs frequently in the works of this modern painter and acts as a kind of a personal hieroglyph.

## THE MAGIC EYE

of an Eskimo mask from Alaska representing the spirit of the salmon.

## THE CHILDISH EYE

as drawn by a seven year old girl in 1962.

# THEY CAN DO EVERYTHING BUT SEE

TWO CENTURIES ago in France, Valentin Haüy opened the first school for the blind and affirmed his conviction that with skilful training, blind people need not be destitute dependents but could become educated and self-supporting citizens.

That school, and the techniques of training it pioneered, led to a revolution in the lives of countless blind people, and to the establishment of blind welfare systems which in some countries are among the world's most advanced social services.

## PROFESSIONAL STATUS

Blind craftsmen have been known from the earliest times, but nowadays the blind, in increasing numbers, are entering commerce, industry and the professions, where they compete with seeing workers on the strength of their merit.

In the Soviet Union there are 286 "workshop schools" for the blind, many undertaking highly mechanized forms of production.

In Japan, which has a long history of work for the blind, about 35,000 blind people are classified as employed, most of them in specially reserved occupations.

The USA and pre-war Germany were pioneers in techniques of placement in unsheltered employment. In the former, some 20,000 blind people are now at work in an extremely wide range of occupations.

In the United Kingdom, one third of all blind people of working age are employed, more than half of them in competitive, unsubsidized jobs. It has been estimated that they produce goods and services worth £5,000,000 a year. In industry, blind workers do more than 700 different jobs in 35 major branches.

## THE BRAILLE SYSTEM

Scientists have joined with social welfare workers to help the blind in their work and leisure. A mass of equipment has been devised for use at school, at work and in the home.

It was another Frenchman, Louis Braille (1809-1852) who gave the blind their system of embossed writing which is now

## PREVENTION COSTS LESS

HELEN KELLER, the world's most famous blind citizen, has said "If one tenth of the money we now spend to support unnecessary blindness were spent to prevent it, society would be the gainer in terms of cold economy, not to mention considerations of the happiness of humanity".

**The cost of 8 million blind.** — Taking the minimum estimate of 10,000,000 blind people in the world, it can be assumed (by reason of the general lack of social services) that at least 8,000,000 of them are partially or wholly dependent. If the cost of providing food, clothing and shelter for an individual is as little as one dollar a week—and in most places it will be far higher—then the cost of providing for 8,000,000 dependent blind people works out at more than $400,000,000 a year.

**A victory of research.** — The cost to Australia of 30 blind babies who suffered retrolental fibroplasia is estimated to be in the region of £1,000,000. The cost to the U.S.A. of their 8,000 cases has been estimated at $800,000,000. The cost of the research work which discovered how to prevent this disease of premature babies was only a few hundred pounds, equivalent to the pension of a single blind person for a year or two.

*Continued from page 27.*

read in practically every language. Despite the advent of recorded systems of reading, Braille is still the medium through which blind scholars attain distinction in schools and universities throughout the world.

Millions of sheets of Braille are printed and distributed annually, and the larger Braille libraries, notably in Washington and London, each have more than 400,000 Braille volumes in them covering every facet of literature from the latest popular novel to the oldest classical text.

More recent devices range from embossed maps to instruments which enable a blind engineer to measure accurately to a 5,000th of an inch, and from a cooking stove with a special Brailled dial to electronic guiding devices. With such aids at their disposal, it can be said without too much exaggeration, that a modern blind person "can do everything but see".

## 650,000 BLIND CHILDREN

But these achievements, which have given a new life and status to blind people in a few countries, are still unknown throughout most of Africa, Asia and Latin America where the majority of the world's blind live.

In consequence, millions of blind people live as street beggars and family dependants in deplorable conditions. It is estimated that a minimum of seven-and-a-half million blind people live in rural areas where practically no facilities exist for their education and rehabilitation.

There are at least 650,000 blind children in the world but, as yet, only about 40,000 of them are at school. This is an economic no less than a humanitarian problem, for an untrained blind person is usually unemployable.

## THE WORK OF UNESCO

Workers for the blind recognize that their most challenging task is in the rapidly-developing countries, and that the need is to devise forms of rehabilitation adjusted to the realities of life in an African tribe or Asian village.

Substantial progress has been made in this direction in the past decade. With the help of Unesco a world Braille code has now been devised in which the same dot sign means approximately the same sound in every language, and in which a Braille alphabet can readily be devised for any vernacular.

## INTERNATIONAL AID

Experiments have shown that illiterate blind tribesmen from primitive rural areas can be effectively trained as peasant cultivators, and during the past six years, "farmcraft" training centres to provide this novel form of rehabilitation have been set up in twelve countries of Africa and Asia. Schools for blind children are being established in countries where they would have been unthinkable a few years ago.

In response to this world need, blind welfare workers have developed their own international organizations.

The American Foundation for Overseas Blind has an international programme, through which many countries obtain professional guidance and technical aid. The Royal Commonwealth Society for the Blind works in thirty-five countries and is a channel through which Commonwealth countries with advanced systems of blind welfare make their experience and technical resources available to all.

The World Council for the Welfare of the Blind, founded in 1951, now has a membership covering nearly fifty countries and, from its offices in London and Paris and through its frequent international meetings, is a powerful stimulus to work for the blind.

There is also the International Association for the Prevention of Blindness, which has a more medical character and is concerned to a large extent with promoting methods of restoring sight through surgery etc., and investigating the causes of blindness and how to eliminate them.

Photos
and text
by
Joseph Morgenstern

# CHAN POH LIN

**This Chinese girl of eighteen, who can neither see nor hear, must be seen and heard to be believed**

**Her thumbs feel the movement of your tongue and lips. She repeats the words, one by one. "Do... you... find... it... hard... to... speak?"**

YOU ARE LIABLE to be uneasy at the prospect of meeting her for the first time: afraid, for her sake, that she will prove unreachable in the solitude of her soul: afraid, for your own sake, that her plight will overwhelm you with paralyzing pity and a sense of guilt at the ease with which you discern your surroundings.

As she sits silently on a sofa in the living room of her cottage at the Perkins School for the Blind near Boston, she brings to mind Robert Frost's description of an old man dozing on a winter night: "A light he was to no one but himself." How to know what thoughts absorb her? You have been told that she knew only a dialect of Chinese before her illness seven years ago, and that now she understands and speaks English. Yet you cannot quite believe she has learned a new language without ever seeing its characters or hearing its sounds. Then you speak to her.

She rests her thumbs lightly on your lips, and you pronounce your name. She repeats it, and says "Hello".

Amazed at the 'Hello' but still afraid to find that she cannot deal with the complexities of conversation, you put a question to her. "Do you find it hard to speak?"

Her thumbs feel the movement of your tongue and lips, they sense the breath and buzzing of your syllables. She repeats the words, one by one, in a voice that is sometimes harsh or strangled but perfectly understandable. "Do... you... find... it... hard... to... speak?"

She pauses briefly and leans forward, straining for the sense of it. Suddenly the words come together in her mind, and there is a flash of triumph on her pretty face. "Do you find it hard to speak?" she says more quickly, smiling again. "No, I do not find it hard to speak. I only find it hard to learn." With that she laughs an easy, girlish laugh, and you know that neither of you is alone.

Not all conversations go so easily for Poh Lin. Often her difficulty in grasping and imitating a new sound is such that it must be repeated five or ten times. Ultimately, though, she understands each word and retains it. Her teachers have given up estimating the size of her English vocabulary. It is now so large that she writes compositions that are eloquent, albeit grammatically erratic, on a Braille typewriter, and is learning to use a regular typewriter as well. When she needs help in understanding spoken words she can fall back on the manual alphabet as a last resort. And she can pronounce, clear as a bell, the name of the state in which the Perkins School is

situated: Massachusetts, a word that should not be inflicted on any stranger to the language.

Remarkable as her accomplishments are, they do not of themselves make Poh Lin unique. She is one of thirty-two deaf-blind students at the Perkins School, all of whom are learning with greater or lesser facility the same things Poh Lin is learning. What distinguishes her from other similarly afflicted people is this: despite her double handicap, Poh Lin's personality seems to have survived virtually undamaged.

If blindness is "a dying," as Father John Carroll has said, simultaneous loss of sight and hearing is very nearly death. Yet Poh Lin is the very embodiment of life. After seeing her in her home in Singapore for the first time early in 1959, Dr Edward J. Waterhouse, director of the Perkins School, where deaf-blind children have been educated since 1837, wrote that Poh Lin's "spontaneous humor and joy are really very baffling; she does not seem to be withdrawn in any way, and finds it quite easy to express her emotions, all of which seem normal enough and not extreme."

At that time, five years after an unknown disease had taken her sight and hearing, Poh Lin could still speak Cantonese, but her speech had begun to deteriorate and Chinese friends found it more and more difficult to understand her. At the Singapore School for the Blind, largely through the efforts of a blind teacher named Reuben Jacobs, she had learned the manual alphabet and a reading knowledge of a few English words. Nevertheless, her means of communication were small and dwindling, and no one in Singapore knew the techniques for helping her retain what speech she had, let alone for giving her a new and more universal language.

When Poh Lin was brought to Dr Waterhouse's attention, she was living with her invalid father and her aunt in a squalid cubicle, barely larger than the single bed it contained, on Sago Lane, Singapore's death street which is lined with the funeral houses to which Chinese people go when their death is imminent. Her mother had died when Poh Lin was a small child. Handicaps notwithstanding, the girl managed to keep house, to keep herself clean, to wash and iron her only dress before school each morning and to impress visitors like Dr Waterhouse with her radiant personality.

At first Dr Waterhouse was cautious about uprooting the girl from her home, poor as it was. Then he began to feel that if she had adjusted as well as she had to deafness and blindness, she might also be able to take a change of environment in her stride. He decided to bring Poh Lin to Perkins, and undertake her education in English. "We brought her here on a gamble," he said. "We knew there was a serious risk that her educational program in America would be a failure, that the frustrations of learning normal communication might be so great that she couldn't stand up under the strain."

The stakes were high in the gamble, but the potential prize was great. Poh Lin was a girl of uncommon intelligence and extraordinary stability. In Singapore she could never hope to communicate with anyone beyond the small circle of students and teachers who knew both the manual alphabet and Chinese. At the Perkins School, the bounds of her knowledge might be expanded immeasurably; using a widely understood language, she might acquire the power of speech so important to an individual's self-esteem, and—here was the possibility that made her case so significant—she might become as much of an inspiration to the deaf-blind of Asia as Helen Keller had become in the United States.

From the chockablock tenements of Sago Lane, where the Chinese go to die, Poh Lin traveled to Watertown, Mass., and the charmingly Oxfordian campus of the Perkins School, where blind and deaf children go to live. Her tuition was provided by a Perkins scholarship while her trip was financed by funds from Malaya, Britain and the United States. She was accompanied by Wong Shui Sin, a bi-lingual teacher of normal children in Singapore who had recently learned the techniques of educating the deaf-blind.

Poh Lin and Miss Wong came to the Perkins School in September, 1960, and the young girl embarked upon what is probably the most arduous educational program in the world. She was fitted with a hearing aid, which keeps her in touch with her environment even though it cannot give her the ability to distinguish sounds as we know them. She got an occidental wardrobe, a Braille typewriter, and an infinitely patient teacher from India named Khogendra Das. ("Who gives up first when Poh Lin can't understand a new word," Mr. Das was asked, "you or Poh Lin?" "Neither one," he replied, "we stick to each other.")

As her knowledge of the world about her grows, Poh Lin's understanding of herself keeps pace. She knows she will never see or hear again—her loss of hearing was a greater source of anguish to her at first than her blindness—and she knows her life will be difficult. But she also knows it will be useful.

Perhaps the most reassuring aspect of Poh Lin's development is the eagerness with which she has accepted the role thrust upon her first by disease and later by people who believed in her fundamental strength. She is no passive pawn, manipulated by educators who need a convenient example for inspirational purposes. With mature understanding and great pride, she grasps the similarities between herself and Helen Keller, whom she met in Connecticut last summer.

There is a danger, however, in comparing Poh Lin too closely to Helen Keller. By any intellectual standards Miss Keller is a genius. Although Poh Lin is an exceptionally bright and gifted person, she does not have Miss Keller's insatiable appetite for knowledge. Poh Lin has manifested no burning desire to study new languages or investigate philosophical systems. As Dr Waterhouse has observed, "it is unlikely that Poh Lin will become the author and lecturer that Helen Keller has, though such a development is not impossible".

Poh Lin's example, the director stresses, "is likely to rest more on what she is than what she does". Her emotional stability and indomitable good cheer, her infectious laugh and poignant smile, all make her unique in her own way as Helen Keller is in hers.

When Poh Lin returns to Singapore at the end of the 1962 school year and begins her career as teacher of the blind and an example to the deaf-blind of Asia, she will meet new problems. She knows this. Her friends will have to check and correct her speech continuously to counteract the deterioration that always menaces someone who cannot hear his own words.

Poh Lin herself will have to fight constantly against the temptation to lapse into finger language, which requires so much less physical and mental energy than she pours into speech. Yet fight she must, for her own benefit. With the manual alphabet she is a person set apart, in cultural quarantine. With speech she can communicate with the rest of the world and join in its life.

It would be idle to maintain that Poh Lin is unafraid. She may be an example, or an inspiration, but she is also a child. In her diary a few months ago she wrote: "I understand that Dr Waterhouse asked everybody not to spell to me but to talk with lips. This made me nervous. All of my life I have never talk English and just now learn. It is very hard for me when I am also a Chinese. I tell him I would not learn and my heart is afraid..."

Poh Lin's heart has been afraid before, yet she has learned. Her success at the Perkins School gives every reason to believe that her intelligence and courage will continue to be masters of her fear. And after all, how are you going to stop a Chinese girl who has learned to say 'Massachusetts'?

HOLDING ON TO ONE ANOTHER, THE BLIND GO TO WORK

PETER HAS LEARNED TO FEED THE CATTLE

# PETER WILL BECOME A FARMER

At Phansa in India an agricultural and rural centre has been created for the rehabilitation of young blind people. Here they are taught farming and need no longer be entirely dependent on their sighted fellow men. When they return to their villages they will no longer vegetate in hopeless idleness as the village blind used to do. Peter, is 22 years old, and has come from Madras to learn his trade.

PHOTOS BY P. SHINDE

THRESHING

THE SMILE OF THE BLIND WHO ARE LOOKING FORWARD TO EARNING THEIR LIVING

*The blind pupils of Shiro Fukurai learn with their hands what a dog is like.*

*With their hands also they will make a clay figure of a dog.*

# I want eyes

Shiro Fukurai is a sculptor who teaches a the municipal school for the blind at Kobe in Japan. He helps his pupils to have confidence and to pursue a purpose through art (left). The small statue (right) is entitled "I Want Eyes" and is the work of Shigeru Uchikawa, an eight-year-old pupil of Shiro Fukurai. The boy created the figure after an operation had failed that was to restore his sight. His work won an award from the Japan Unesco Art Educators' Association.

PHOTOS BY AKGAWA

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